In addition, a communication facility KM between the control unit SE and the determination unit EE or the measurement unit ME, as applicable, is used on the one hand to supply a status for the setting of the adaptive optical filter F, either to the determination unit or to a further control unit, and on the other hand to carry out regulation of the adaptive optical filter F from the determination unit EE. For this reason it is best if the communication facility, KM, provided is directional.

In the determination unit or in the further control unit, a table can be created when the pass characteristics are reset, for use in registering the effects which can influence the signal against the corresponding setting of the pass characteristics of the adaptive optical filter F. This registration permits the effects which influence the signal to be analyzed or separated out for each setting of the pass characteristics of the adaptive optical filter F. Further, the pass characteristics of the adaptive optical filter F can be regulated in relation to one or a group of signal degradations, from an analysis of one of the quality parameters which have been determined. By using a predefined variation in the pass characteristics of the adaptive optical filter F, the signal quality can be analyzed or/and broken down in terms of different effects which influence the signal. Furthermore, the signal can be optimized in relation to one or more quality parameters by means of suitable adjustment parameters of the adaptive optical filter F, and from the adjustment parameters conclusions can be drawn about the signal degradations.

Fig. 3 shows a further low cost arrangement in accordance with Fig. 2, for measuring signal degradations for an optical broadband signal S transmitted over a transmission system, from which at least a fraction S1 in amplitude terms is extracted by means of a coupler KO and is fed to an adaptive

optical filter F. Connected between the coupler KO and the adaptive optical filter F are a first circulator C0, followed by a bandpass filter BPF0, and then a second circulator C1. Connected to the output from the adaptive optical filter F is an optical signal feedback FB, for the purpose of transmitting the filtered signal S2 to the second circulator C1. The filtered signal S2 is supplied to a signal quality measurement unit ME as shown in Fig. 2 via the circulator C1, the bandpass filter BPF0 and the first circulator C0. Connected to the adaptive optical filter F is a control unit SE for the purpose at least of switching through and/or exercising an influence on signal distortions, even as far as equalizing the optical signal S. Connected downstream from the bandpass filter BPF0 is an amplifier V1. This amplifier V1 can also be arranged anywhere in the optical signal feedback FB, i.e. can be connected in circuit either before or after the adaptive optical filter F. Optionally, an amplifier V0 can be connected in circuit between the coupler KO and the first circulator C0 as a booster, as in Fig. 2.

The essential advantage of the arrangement shown in Fig. 3 consists in the fact that it saves one of the two bandpass filters BPF0, BPF1 shown in Fig. 2, and thus results in a reduction in costs.

The functionality and the other components ME, EE, KM, SE of this arrangement are identical with that shown in Fig. 1 or 2, as appropriate.

In both the arrangements, shown in Fig. 2 and 3, an opto-electrical converter is connected in circuit before the measurement unit ME.

Both arrangements can also be connected at the end of a transmission link or, for example, at the output from an add-

drop module. This renders the coupler KO and the amplifier V0 superfluous.

The bandpass filters BPF, BPF1 or BPF0, as applicable, used as channel selectors are provided in the exemplary embodiments explained above as variable wavelength filters for use in allowing the selective passage